Executive Summary

In response to Paragraphs 52(c)(ii) and (iii) of EPA's May 13, 2021 Emergency Order (Order), New-Indy has retained TRC Environmental Company to prepare a Quality Assurance Project Plan (QAPP) for data collection of hydrogen sulfide (H_2S) and analysis to determine if New-Indy is meeting H_2S concentrations specified in Paragraph 52(b) of the Order. Paragraph 1 of Enclosure 4 of EPA's May 13, 2021 Section 114(a)(1) Information Request (Information Request) provides:

> By June 1, 2021, submit to the EPA a Quality Assurance Project Plan (QAPP) to conduct continuous offsite hydrogen sulfide monitoring. Prior to submitting the QAPP, New Indy shall consult with EPA on the required monitoring objectives and locations.

This document is a summary of New-Indy's monitoring objectives and locations per Paragraph 52(c)(ii) and EPA's Information Request, to form a basis for New-Indy's consultation with EPA.

The QAPP will follow the outline and guidance of the U.S. EPA Guidance for Quality Assurance Project Plans, EPA QA/G-5, EPA/240/R-02/009, December 2002, and South Carolina Department of Health and Environmental Control (SC DHEC) QAPP template, January 2007, and other applicable guidance.

New-Indy's QAPP will be divided into the following Sections: Project Management (Group A), Data Generation and Acquisition (Group B), Assessment and Oversight (Group C), and Data Validation and Usability (Group D). Within these four groups, the QAPP will provide the details and project plan elements including, but not limited to:

- Project Roles and Responsibilities, Distribution List, and Approving Agencies
- Project Background and Description
- Data Quality Objective and Data Quality Assessment
- Documents, Records, and Data Reporting
- Instrumentation and Equipment Testing, Inspection and Maintenance
- Instrument Calibrations
- Data Management
- Assessments and Response Actions
- Reports to Management and Agencies (Weekly, Monthly Reports)
- Data Review, Verification, and Validation Methods and Processes

New-Indy and TRC are in the processes of drafting the QAPP for submittal to EPA on June 1, 2021 pursuant to the Information Request.

New-Indy is proposing the following monitoring locations for the QAPP and a monitoring program for H_2S.

Site Selection

Paragraph 52(f) of EPA's Order provides that New-Indy Catawba mill install three continuous H_2S monitoring stations at the approximate locations identified on Attachment A of the Order. In footnote 1 on Attachment A of the Order, EPA invited New-Indy to request approval for alternative locations of the continuous monitors. On May 17, 2021, New-Indy provided EPA with a *Request for Alternative Ambient Monitoring Location* to relocate the ambient monitoring station along the northern boundary of the wastewater aerated stabilization basin (ASB) to the northeast property-line of New-Indy located along the Catawba River. Table 1 provides details of each monitoring station and its respective GPS coordinates. Figure 1 details the proposed monitoring stations for the H_2S monitoring program. Table 2 identifies the parameters to be measured along with average intervals and height of measurement in meters (m).

Table 1
EPA Proposed Monitoring Locations and
New-Indy Proposed Alternative Location

Monitoring Station	Monitoring	Latitude	Longitude	Location Description
Station 1	• Continuous H_2S ambient concentrations • Meteorological monitoring	34°49'58.5"N	80°53'15.3"W	South of Wastewater Treatment Pond
Station 2	• Continuous H_2S ambient concentrations	34°50'55.4"N	80°52'05.3"W	East of Wastewater Solids Pond
Station 3	• Continuous H_2S ambient concentrations	34°51'21.60"N	80°52'17.92"W	New-Indy Northeast Mill Property Line

Figure 1
New-Indy Proposed H_2S Monitoring Locations
Catawba, SC

New-Indy Catawba LLC
Catawba, South Carolina
QAPP Plan Summary

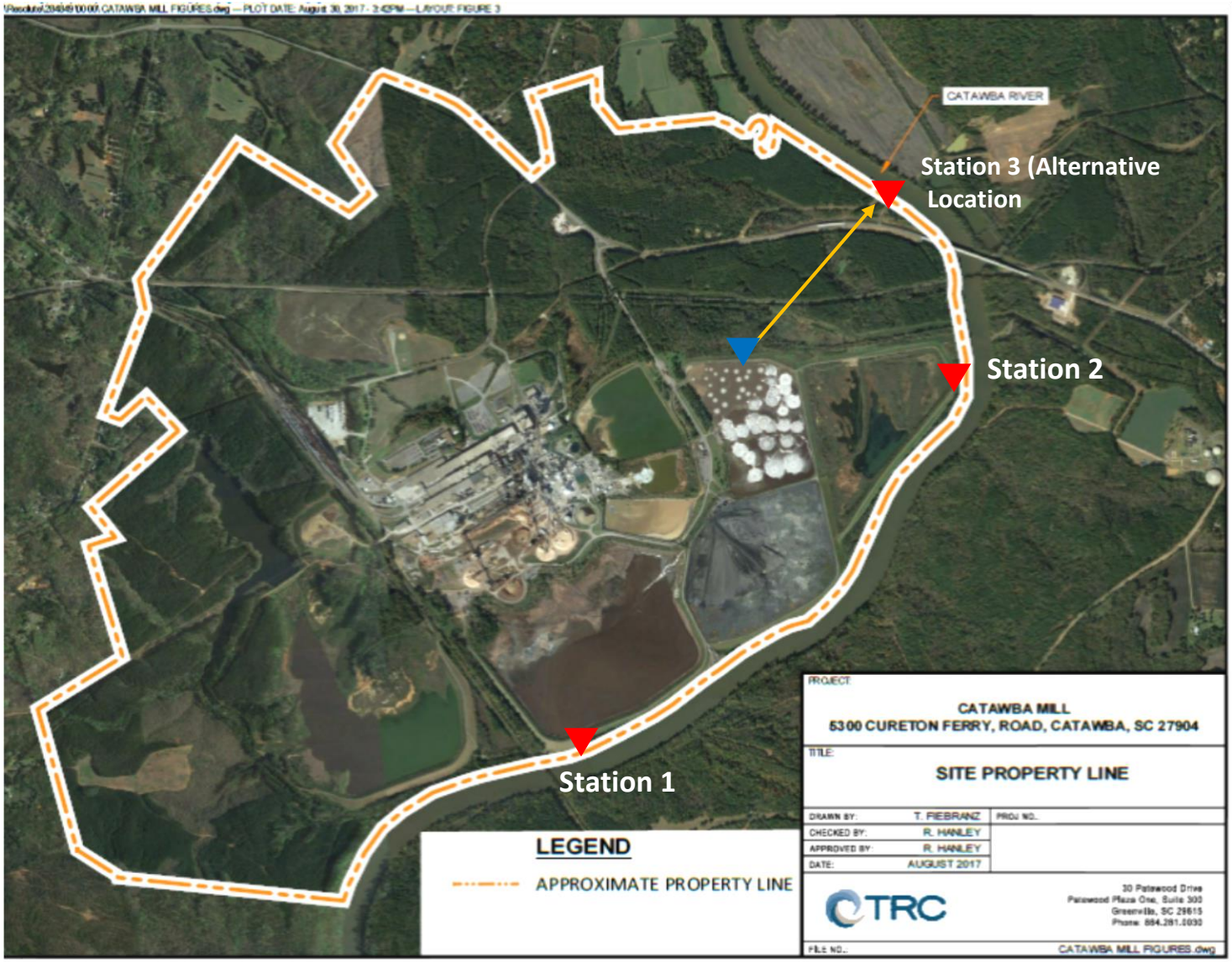

Table 2
Measurable Parameters

Parameter	Units	Average Interval	Height (m)
H_2S	Parts per Billion (ppb)	1 minute	4
Wind Speed	Meters per Second (m/s)	5 minutes	10
Wind Direction	Degrees (°)	5 minutes	10

Data Quality Objectives (DQOs)

The overall goal of this monitoring program is to collect ambient H_2S concentration and meteorological data with sufficient frequency and quality to allow for a scientifically defensible analysis of sources and conditions that lead to objectionable odors in the communities surrounding the New-Indy mill. The Data Quality Objectives (DQOs) of this project are to provide valid measurements that satisfy the goals of the monitoring program. Monitoring is to be performed in accordance with TRC Standard Operating Procedures (SOPs) and EPA regulations and guidance documents, as applicable.

The New-Indy Monitoring Program is designed to achieve program DQOs and meet or exceed the minimum standard requirements for field monitoring and analytical methods as described in EPA Quality Assurance Handbook for Air Pollution Measurement Systems, Volume II, Ambient Air Quality Monitoring Program (EPA-454/B-13-003, May 2013). The overall QA objective is to develop and implement procedures for continuous air quality and meteorological monitoring and data validation and reporting which will provide results that are scientifically valid, and the levels of which are sufficient to meet program DQOs.

For this program, the overall DQO for H_2S monitoring will be based on the EPA DQO for sulfur dioxide (SO_2) (Federal Register Vol. 75, No. 119, June 23, 2010). The DQO will be a goal of acceptable measurement uncertainty defined as an upper 90 % confidence limit for the coefficient of variation (CV) of 15 % for precision and as an upper 95 percent confidence limit for the absolute bias of 10 % for bias, as defined in 40 CFR Part 58 Appendix A.

The DQOs for meteorological parameters will be to achieve the accuracy requirements of Table 0-8 (PSD Calibration and Accuracy Criteria) in EPA QA Handbook Volume IV, 2008. The following list summarizes the DQO criteria for meteorological measurements:

- Horizontal Wind Speed: ±0.2 m/s < 5 m/s, ± 5% ≥ 5 m/s
- Wind Direction: ±5 degrees

Measurement Quality Objectives (MQOs)

Measurement Quality Objectives (MQOs) are designed to evaluate and control various phases (sampling, preparation, analysis) of the measurement process to ensure that total measurement uncertainty is within the range prescribed by the DQOs. MQOs can be defined in terms of the following data quality indicators:

- *Precision* – a measure of mutual agreement among individual measurements of the same property usually under prescribed similar conditions. This is the random component of error.

- *Bias* – the systematic or persistent distortion of a measurement process which causes error in one direction.

- *Accuracy* – a measure of the overall agreement of a measurement to a known value; includes a combination of random error (precision) and systematic error (bias) components of both sampling and analytical operations.

- *Representativeness* – a qualitative term that expresses "the degree to which data accurately and precisely represent a characteristic of a population, parameter variations at a sampling point, a process condition, or an environmental condition."

- *Completeness* – a measure of the amount of valid data needed to be obtained from a measurement system.

- *Comparability* – a qualitative term that expresses the measure of confidence that one data set can be compared to another and can be combined for the decision(s) to be made.

- *Detectability* – the determination of the low range critical value of a characteristic that a method specific procedure can reliably discern.

Data Quality Assessment

Methods for calculating precision, accuracy and bias are conducted following the procedures specified in Appendix A of 40 CFR Part 58 and guidance provided in the Quality Assurance Handbook for Air Pollutions Measurement Systems, Volume II. These procedures are summarized below.

Precision - Precision is the agreement among a set of replicate measurements without consideration of the "true" or accurate value: i.e., variability between measurements of the same material for the same analyte. Simply stated, precision is a measure of the variability of an instrument.

The precision of automated analyzers is evaluated by making multiple comparisons of the sample's known concentration against the instrument's response and calculating the upper bound of the coefficient of variation (CV).

Accuracy - Accuracy is the closeness of agreement between an observed value and an accepted reference value. The difference between the observed value and the reference value includes components of both systematic error (bias) and random error. The accuracy of automated methods is assessed through field performance audits. Performance audits are conducted by sampling an independent standard (i.e., a

standard not used for instrument calibration). Accuracy is evaluated by comparing the measured response to the known value.

Bias Estimate – For continuous gaseous pollutant measurements (H_2S), the bias estimate is calculated using the one-point QC checks as described in Section 3.2.1 of 40 CFR Part 58 Appendix A. The bias estimator is an upper bound on the mean absolute value of the percent differences calculated on a quarterly basis.

Documents and Reporting

Current copies of all documents are maintained at the specified locations. At the conclusion of the project, copies of documents will be archived at TRC's regional office in Gainesville (GNV), FL for a period of not less than five years.

Data Reporting - Table 3 indicates the categories and types of records and documents which are kept relating to this project. The documents and records that will be produced during this air monitoring program include, but are not limited to, the following types:

- Weekly data reports
- Final Summary Report
- Revisions to this QAPP

Quality Assessment (QA) reports will be prepared and submitted on an as-needed basis to the TRC Project Manager (PM) to ensure that any problems identified during the sampling and analysis program are investigated and the proper corrective measures taken in response. The QA reports may include:

- Problems noted during data validation and assessment, and
- Significant QA/QC problems, recommended corrective actions, and the outcome of corrective actions.

Table 3
Project Documentation

Record/Document Type		Location
Management & Organization	Client Contract	Project Files - GNV
	Correspondence	Project Files - GNV
	Staff Training/Certifications	Project Files - GNV
Site Information	Siting Criteria Checklists	Project Files - GNV
	Site Maps and Photos	Project Files – GNV & New-Indy
Field Operations	QAPP	Project Files – GNV & New-Indy
	Standard Operating Procedures	Project Files – GNV & New-Indy
	Site Logbooks	Project Files - New-Indy
	Quality control documents	Project Files - New-Indy
	Standard/Calibration Certs.	Project Files – GNV & New-Indy
Raw Data	Electronic Data	GNV File Server
	Hardcopy Data	Project Files - GNV
Data Reporting	Weekly/Monthly data/Quarterly summary reports	Project Files - GNV
	Final data/summary reports	Project Files - GNV
	Electronic format reports	GNV File Server
	QA Assessments and Reports	Project Files - GNV
Data Management	Hardware and software manuals	Project Files – GNV
	Data Validation Procedures	Project Files - GNV
Quality Assurance	Audit results	Project Files - GNV
	QA Assessments and Reports	Project Files - GNV

Data Generation and Acquisition

Continuous H_2S monitoring stations and a meteorological monitoring tower are to be installed and operated for the period of the Order.

Sampling Methods - Continuous monitoring of H_2S concentrations will be conducted using a Teledyne-Advanced Pollution Instrumentation (TAPI) model T101 Ultraviolet (UV) Fluorescent H_2S Analyzer. The T101 uses a heated catalyst to convert H_2S to sulfur dioxide (SO_2) and measures the concentration of SO_2 by UV fluorescence. Prior to reaching the catalyst, the sample passes through a SO_2 scrubber allowing the concentration of H_2S to be determined.

Meteorological (met) parameters, wind speed and wind direction, will be measured with R.M. Young 86000 Sonic Anemometer. Met data will be recorded and calculated (sigma theta ($\sigma\theta$)). The sonic anemometer will be mounted on an aluminum 10-m tower. Standard deviation of wind direction will be calculated based on equations from the of EPA QA Handbook Volume IV (EPA-454/B-08-002, March 2008).

Table 4 summarizes the instrumentation and measurement methods to be deployed and operated for this program.

Table 4
Measurement Methods

Parameter	Manufacturer	Model	Units	Measurement Method
H_2S	TAPI	T101	ppb	UV Fluorescence as SO_2
Wind Speed	R. M. Young (RMY)	86000	meters/second (m/s)	2D Ultrasonic Anemometer
Wind Direction	RMY	86000	Degrees (°)	2D Ultrasonic Anemometer

Quality Control

Quality Control (QC), as it applies to an air quality monitoring program, is the overall system of technical activities and procedures developed to measure the attributes and performance of the sampling program against defined standards to verify that they meet the stated requirements established by the program. Quality control includes:

- Establishing specifications or acceptance criteria for each quality characteristic of the monitoring/analytical process,
- Assessing procedures used in the monitoring/analytical process to determine conformance to these specifications, and
- Taking any necessary corrective actions to bring them into conformance.

The overall goal of QC is to minimize loss of data through invalidation by establishing a reasonable level of checking at various stages of the data collection process. QC procedures determine if field procedures are producing acceptable data and are used to initiate appropriate corrective actions; therefore, QC is both proactive and corrective.

TRC will have primary responsibility for implementation of all monitoring program QC measures. The following is a summary of QC activities that will be implemented to ensure that measurement uncertainty is maintained within established acceptance criteria for the attainment of the program DQOs. QC activities will include, but not be limited to, the following:

- Hydrogen Sulfide
    - Daily 1-point QC check,
    - Weekly automated calibration checks (zero/span and precision),
    - Quarterly multipoint calibration checks, if needed,
    - Daily review and validation of instrument measurements and diagnostics,
    - Monthly operational checks by site operator, and

- Routine maintenance as specified in TRC's Standard Operating Procedure (SOP).

- Meteorological Measurements
  - Semiannual calibrations (at project initiation and completion),
  - Monthly reasonableness and performance checks by site operator, and
  - Verification that wind sensors are operational and show no sign of damage.

Quality control activities for each measurement system are conducted according to the schedule in Table 5.

Table 5
Field Activity Schedule

Scheduled Field Activities						
Field Activity	**Every Visit**	**Daily**	**Weekly**	**Monthly**	**Quarterly**	**Semi-Annually**
Communication with Project Manager	X			X		
Change H_2S inlet filter				X		
Inspect/Clean H_2S sample manifold	X			X		
Visually Inspect Meteorological sensors/cables	X			X		
Site operator checks/inspections, logbook entries	X			X		
One Point QC Check (70 ppb)		X				
Zero/Span checks (auto)			X			
Perform & record analyzer calibrations.					X	
Perform & record meteorological calibrations.						X
H_2S Calibrations					X	
Certify gas dilution calibrator					X	
Ship/Email Documentation to TRC	X					

Instrument and Equipment Testing, Inspection, and Maintenance

All monitoring equipment will be tested during the pre-operational phase of the program. All instruments and sensors will receive a cursory calibration check to verify operation prior to deployment. All calibration standards will be inspected for current calibrations and traceability to NIST or the appropriate authority.

The following is a summary of activities and procedures TRC will follow to ensure all instrumentation and equipment will operate at acceptable performance levels throughout the duration of the program.

- H_2S
  - Daily review of instrument measurements and diagnostics,
  - Daily 1-point QC check (calibration verification),
  - Weekly zero and span (1000 ppb) check,
  - Monthly operational checks by site operator, and
  - Routine maintenance as specified in TRC's Standard Operating Procedure (SOP)

- Meteorological Measurements
  - Monthly reasonableness checks by site operator
  - Verification that wind sensors are operational and show no sign of damage,
  - Wind speed and wind direction measurements represent actual conditions,
  - Semi-annual calibration, and
  - Routine maintenance as specified in TRC SOPs.

Documentation of all site activities will be provided through the use of multiple forms including the site log books, site visit check sheets, maintenance and repair activities as well as calibration records. Inventory of spare parts and a schedule of routine activities will be maintained at the station. Copies of these forms are included in the appropriate TRC SOP.

Instrument and Equipment Calibration and Frequency

Calibrations - Calibrations will be performed according to TRC SOPs. All calibration equipment will be in current certification and traceable to the National Institute of Standards and Technology (NIST) or the appropriate authoritative standard.

- H_2S
  - Multipoint calibration at program start,
  - Additional multipoint calibrations, if determined necessary,
  - Daily 1-point calibration verification (70 ppb), and
  - Weekly automated calibration checks (zero and 1000 ppb).

- Meteorological Measurements
  - All sensors calibrated at program start,
  - Monthly verification checks, and
  - Complete calibration at program end.

Certification records will be maintained at the site location and in TRC's Gainesville, FL office. Calibrations and certifications will be performed by trained and experienced field scientists and technicians. Calibration equipment, as required, may be sent to the manufacturer or a facility equipped and qualified to perform traceable calibrations.

Calibrations will be performed at the start and end of the monitoring program, and as deemed necessary based on QC activities.

Inspections - TRC has purchased equipment for this project to minimize the potential for instrument failure and data loss. In addition, consumables and spare parts for a minimum of six months have been purchased for this monitoring location. These parts and consumables were obtained from the original equipment manufacturer and will be located at the site. TRC's field operations manager will be responsible for maintaining an inventory of these items. In the event additional parts or supplies are needed, they will be procured from the instrument manufacturer through TRC's Gainesville Office where they will be inspected prior to deployment. On a monthly basis, the TRC Field Scientist will communicate to the TRC PM the status of all spare parts and consumable items. The PM will be responsible for ordering all parts, supplies and materials, as required, to meet the requirements of this program. The PM will also be responsible for ensuring that these parts and supplies meet the specifications of the instrument manufacturer allowing all instrumentation to be operated in compliance with this QAPP.

Data Management

Data management involves the collection, storage, transmittal, validation, reporting and archiving of measurements taken from continuous and time integrated samplers, sensors and instruments. The T101and T700 will be connected to a Campbell CR1000X data logger and a PC-based data logger. A local area network (LAN) within the shelter will connect the PC, T101, and T700 to the internet via a 4G router. The PC logger will poll the T101 at 1-minute intervals and store the value in a local database. On an hourly basis, diagnostic parameters will be polled and written to the local database. TRC will provide New-Indy, U.S. EPA, and SC DHEC with an online dashboard for viewing real-time H_2S concentrations, wind speed, wind direction, graphs, and wind roses.

At 1-minute intervals, data are transferred via TCP/IP to a central relational database. This server maintains TRC's central air monitoring database and hosts a limited access/secure website to allow for data display, review and editing.

For QC purposes, data will also be stored on a local USB memory device and transferred to a server located in TRC's Gainesville, FL office. For this program, automated alerts will be sent via email to project personnel when 30-minute rolling averages of H_2S concentration exceeds 600 ppb, and 70 ppb over a rolling seven-day period (EPA Order Section 52(b)). This alert system is being established to assist the facility in timely reacting to elevated levels of H_2S, and therefore, develop an understanding of the contributors and causes for those evaluated levels.

Data analysts will review measurement data on a daily basis as a first level of validation. In the event any data are determined to be missing, the DAS software will attempt to retrieve these data from the instruments and place them in the local database. These values will be transferred to and populated in the central SQL server. In the event data are not retrieved automatically, the data analyst can connect to the instrument directly, retrieve data manually and load those data into the central database.

The central database is structured in such a way that original (unedited) records are preserved. Each record contains a flag that indicates whether or not the record is active as well as flags used to determine validity status. As data are validated, the flags are updated accordingly.

Review and validation activities will be documented to ensure integrity and traceability of the measurement data. Edits will be independently verified by a second analyst, the PM or other project staff. Status codes will be entered into the database indicating the action taken and validity of the datum.

Hard copy data (station logs, sample chain of custody forms, QC checks sheets, etc.) will be sent to the Gainesville office on a monthly basis. Site documentation will be reviewed as part of the final data validation process.

All data management activities will be performed in a manner consistent with TRC SOPs, as applicable.

Assessment and Oversight

Assessment and Response Actions - Assessment activities take place throughout the project to ensure that the QAPP is being implemented as approved. While audits are not a requirement for this monitoring program, quality will be assessed on a regular basis.

- Performing quality assurance (QA) activities including review of QC checks on a daily and weekly basis, as necessary, to meet the valid data capture goal of 80% for all gas pollutant and 90% for meteorological parameters.
- Document all activities associated with QA and maintenance activities performed at the ambient meteorological monitoring stations. TRC will maintain site logbooks as well as maintenance and QC records.
- Maintain a restricted access website to make both raw and validated data available to parties approved by New-Indy. Data will be identified as raw (non-QA/QC) or validated (QA/QC verified) and downloadable by parameter and user selectable time interval covering the entire period of collection (cumulative dataset). Available reports will include 1-minute, daily and 14-day rolling averages for H_2S and 5-minute averages for meteorological parameters. Additional reports can be provided upon request. Formats will be compatible with Microsoft Excel.
- Issue automated alerts via email to parties identified by New-Indy.

Hydrogen Sulfide (H_2S) Analyzer - Daily calibration verifications will be performed using a TAPI T700 dynamic dilution calibrator and a 10 part per million (ppm) EPA Protocol 1 gas cylinder. This system combination will allow calibration gases to be accurately generated in the range of 10 to 1000 ppb. Daily calibration levels will be preliminarily set at 70 ppb. This value may be adjusted as determined in consultation with New-Indy project staff and EPA.

The PC logger will poll the T101 at 1-minute intervals and store the value in a local database. On an hourly basis, diagnostic parameters will be polled and written to the local database. All values are immediately transmitted to a cloud server via a database connection and stored in a Microsoft SQL database where they are available for viewing and download from TRC's website.

The following review activities will take place on a routine basis:

- Instrument shelter and surrounding area inspections,
- Inventory of air monitoring equipment,
- Review of calibration records – NIST traceable,
- Review SOPs – ensure they are being followed,
- Review site logs and documentation – ensure procedures are followed, and
- Ensure site personnel are knowledgeable about the project and procedures.

Meteorological Sensor - Upon completion of the meteorological station installation, the sensor will be calibrated using National Institute of Standards and Testing (NIST) certified devices following TRC Standard Operating Procedures (SOPs) developed in accordance with applicable EPA guidance documents such as QA Handbook Volume IV.

The following review activities will take place on a routine basis:

- Ensure heights and exposures are in accordance with USEPA regulations, and
- Check for accuracy of sensors as required by manufacturer as well as USEPA regulations.

QAPP Revisions and Field Non-Conformances

It may be necessary for sections of this QAPP to be updated in the event that: additional information is received; changes in any system or procedure; changes in conditions at the site. Any revision to this QAPP will be made by a written and approved amendment, which will become a permanent part of this plan.

Corrective action in the field may be needed when the sample network is changed (i.e., more/less samples, sampling locations other than those specified in the QAPP), or when sampling procedures and/or field procedures require modification, etc. due to unexpected conditions. The field team may identify the need for corrective action. The TRC Field Operations Manager will approve the corrective action and notify the TRC Project Manager and TRC QA Officer. The TRC Field Operations Manager will ensure that the corrective action is implemented by the field team. Corrective actions will be implemented and documented in the site logbook. Documentation will include:

- A description of the circumstances that initiated the corrective action,
- The action taken in response,
- The final resolution, and
- Any necessary approvals.

No staff member will initiate corrective action without prior communication of findings through the proper channels as described above. All corrective actions will take into account the possible effect on the data. If necessary, a problem resolution audit will be conducted.

Reports to Management

Weekly Reports – Provide New-Indy a summary report every seven days documenting the results of the continuous monitoring. The report will provide the average H_2S concentrations over the rolling 30-minute periods and the average concentration over the rolling seven-day periods. Each report will cover the period of Monday through Sunday. Formats will be compatible with Microsoft Excel.

Monthly Reports – Each monthly data report will be submitted as an electronic spreadsheet file (i.e., Excel™). Missing or invalid data values will be replaced in the data reports with appropriate null data codes. Invalid data are not included in any data summary statistics. Monthly Reports will be submitted to New-Indy within 30 days following the end of each monthly reporting period.

The information reported each month for each monitoring station will include:

- Valid data recovery rates, in percent, for each monitored parameter during the reporting period;
- A missing data report that lists all missing data by parameter, the hours affected and an explanation of the reason why the data are reported as missing or invalid;
- Sequential, hourly listings of validated hourly gaseous pollutant and meteorological data in tabular format;
- Concentration summaries for H_2S data;
- Rolling 30-minute periods and seven-day periods exceedances;
- Summary statistics for meteorological data, including average, maximum and minimum hourly values for all meteorological parameters except horizontal wind direction and sigma theta, and joint frequency distributions of wind speed and wind direction in both bar graph and wind rose formats.

Quarterly Data Reports - A quarterly quality assurance data report will be submitted to New-Indy within 40 days following the end of each calendar quarter. Each quarterly data report will be submitted in Excel format with PDF scanned copies of all field documentation completed that quarter.

Each quarterly data report will include the following:

- The percent of valid data collection (data recovery rates) for the quarterly reporting period for each monitored parameter;

- A missing data report detailing the site, parameter, hours affected and explanations for any periods of missing data;
- Any independent quality assurance performance and systems audit test data and results;
- Data for all calibrations performed during the quarterly reporting period;
- Joint frequency distributions of wind speed and wind direction in both tabular and graphical (wind rose) formats for each month and the entire quarter.

Final Program Data Report - TRC will prepare a final summary report following completion of the monitoring program. This report will include results of the monitoring effort, discussion of quality control (QC) activities, documents and records (field notes, etc.) as well as a copy of the complete validated database. The final dataset will be provided as a Microsoft Access database.

A Final Report will be submitted within 45-days after the end of the monitoring program.

Corrective Action Reports - The need for corrective action may be identified during audits, data validation, or data assessment. Potential types of corrective action may include data qualification or reanalysis of samples by the laboratory. These actions are dependent upon whether the data to be collected is necessary to meet the required QA objectives. If the data validator or data assessor identifies a corrective action situation, the TRC Project Manager will be responsible for informing the appropriate personnel. All corrective actions of this type will be documented by the TRC Project Manager and maintained in the project files.

Data Review, Verification, and Validation

Data review, validation and verification procedures are used to accept, reject or qualify air quality and meteorological measurement data in an objective and consistent manner. Criteria used to review and validate measurement data are defined in this section. Ambient air quality data will be validated, invalidated or qualified by comparing measurements with criteria established using the Data Validation Tables as presented in EPA QA Handbook Volume II, Appendix D. Criteria were developed using the SO_2 Template from the QA Handbook and will be presented in the New-Indy QAPP.

Observations that do not meet all criterion on the Critical Criteria Table should be invalidated unless there are compelling reason and justification otherwise. Criteria that are important for maintaining and evaluating data quality are included in the second section of the table. Violation of an Operational criterion or a number of operational criteria may be cause for invalidation. Detailed review of quality control results and operational information may or may not indicate data are acceptable for the parameter being evaluated. If one or more of these criteria are not met data are considered suspect unless other quality control information demonstrates otherwise. Systematic criteria which are important for the correct interpretation of the data but may not impact the validity.

Overall, in order for data to be considered valid, each data point must be identifiable in terms of parameter, date, time and units. Instruments and sensors must be calibrated and operated according to applicable TRC SOPs and must be bracketed by acceptable calibrations, QC checks and audits to support

determination of validity. All documentation, including site logs, check lists and maintenance records must be sufficient to support validity of the data.

Verification and Validation Methods – Verification can be defined as confirmation that specified operational requirements have been fulfilled by providing objective evidence. Data verification involves the inspection, analysis, and acceptance of measurement data or samples. Data validation is a routine process designed to ensure that reported values meet the DQOs of the measurement program. The data validation process should examination the collected evidence, in the form QC data and operation documentation, to determine if measurement data meets the requirements for the specific intended use. The purpose of data validation is to detect and then verify any data values that may not represent actual air quality conditions at the sampling station.

Data Validation Process - TRC will employ a three-tiered approach to data validation; Level 0, Preliminary (sometimes referred to as Level 1) and Final (Level 2). This process will assure that data collected for this air quality monitoring program are of sufficient quality to meet the project objectives. Records of QC activities, as described in this QAPP, will be reviewed on an on-going basis and used for determination of data validity. Calibrations, automated QC checks and operator data sheets and log entries will also be used in the validation process. Daily review will be conducted by staff in Gainesville, FL, Philadelphia, PA, and Houston, TX, as available. Visual data inspection as well as results of screening software will be used for validation on a daily basis.

Detailed data validation criteria and data validation protocol will be described in detail in the QAPP. Following is an overview of TRC's data validation procedure:

<u>Level 0 Validation (Daily)</u>

- Review for completeness and acquire missing data, if available,
- Review for anomalies and reasonableness,
- Visually review graphed data, and
- Evaluate automated QC checks (zero/span/precision, etc.).

<u>Preliminary Validation (Level 1)</u>

- Review site records (i.e. site logbook and sample data sheets),
- Review operator QC checks (i.e. sampler flow rate checks),
- Evaluate any noted anomalies to other data sources (i.e. meteorological conditions compared to nearest National Weather Station (NWS) or other verifiable measurements),
- Review instrument calibration records,
- Review performance audit results, and
- Edit/enter validation codes.

<u>Final (Level 2) Validation</u>

Data are considered final when it can be demonstrated that they meet the data quality objectives of the program and are a true representation of the air quality and meteorological conditions in the region. Data must pass Final Validation criteria before submittal to New-Indy. Activities for Final Validation include:

- Generation of biweekly data summaries,
- Review of biweekly data by TRC Program Manager, Data Manager and QA, and
- Update validation codes to final.

EPA Order Paragraph 52(c)(iii)

Paragraph 52(c)(iii) of EPA's Order (May 13, 2021) provides that New-Indy must propose plans for address safety procedures, shutdown procedures, and access restriction at the Mill. For the time period of the monitoring program at New-Indy, the following procedures will be in place:

Security and Safety of Monitoring Stations – Stations 1 and 2 will be located within the security fencing surrounding the mill. The monitoring stations will be secured with a combination lock, and only approved personnel are permitted in the monitoring shelters. Station 3 will be located on the mill property but outside the security fencing (located pending EPA approval as an alternative location). A security fence will be placed around Station 3 along with combination locks on both the fencing and the monitoring station enclosure. Only approved personnel are permitted in the monitoring shelter. In addition, all monitoring stations will be equipped with security cameras and monitored by New-Indy.

Onsite Procedures - Corrective action in the field may be needed when the sample network is changed (i.e., more/less samples, sampling locations other than those specified in the QAPP), or when sampling procedures and/or field procedures require modification, etc. due to unexpected conditions. No staff member will initiate corrective action without prior communication of findings through the proper channels as described above. All corrective actions will take into account the possible effect on the data. If necessary, a problem resolution audit will be conducted. Field personnel will have a minimum of 5-years of experience operating air quality and meteorological monitoring instrumentation. These individuals will be required to adhere to this QAPP and the project SOPs. Data management and validation will be performed by individuals who understand the measurement principals, are familiar with the MQOs and are proficient with TRC's data management procedures. Data analysis and interpretation, as required, will be performed by Senior Level Scientists and/or Engineers with appropriate degrees and greater than 10 years of experience. There are no professional certifications required for this monitoring program.

Supporting Documentation – Table 3 indicates the categories and types of records and documents that are kept relating to this project. Current copies of all documents are maintained at the specified locations. At the conclusion of the project, copies of documents will be archived at TRC's regional office in Gainesville (GNV), FL for a period of not less than five years.